Contribution ID: **33**   Type: **Poster session**

Current status of smooth quantum gravity

Friday 5 July 2019 16:50 (20 minutes)

Smooth QG is the attempt to use findings and infinite geometric constructions of differential geometry and topology in dimensions 3 and 4, to solve problems in physics, especially gravitational physics. The relation between general relativity and quantum mechanics is of particular interest. We report the recent result of G. Etesi that large exotic R4's are Ricci-flat and Koehler so that they are gravitational instantons. Also exotic smoothness structure of certain R4 determines realistic value of the cosmological constant, neutrino masses and some parameters of inflation. The smoothness is used to explore quantum regime of gravity via operator algebras and Riemannian curvature it generates.

https://arxiv.org/abs/1601.06436
https://arxiv.org/abs/1709.03314
https://arxiv.org/abs/1811.04464

Authors: KROL, Jerzy (University of Silesia); Dr ASSELMEYER-MALUGA, Torsten (German Aerospace Center (DLR), Berlin, Germany)

Presenter: KROL, Jerzy (University of Silesia)

Session Classification: Beyond V